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December 20, 1991

Ms. Donna R. Searcy
Secretary
Federal Communications Commission
1919 "M" Street, N.W.
Washington, D.C. 20554

Re: Comments on Notice of Proposed
Rule Making in MM Docket No.
87-268, FCC 91-337

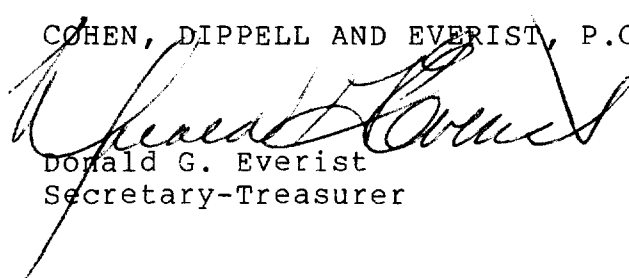
Dear Ms. Searcy:

Enclosed herewith are five copies (original and four) of the Comments concerning the Advanced Television System in the FCC Notice of Proposed Rule Making adopted October 24, 1991 regarding MM Docket No. 87-268 by Cohen, Dippell and Everist, P.C.

If there are any questions, please do not hesitate to contact this office.

Sincerely,

COHEN, DIPPELL AND EVERIST, P.C.


Donald G. Everist
Secretary-Treasurer

DGE:cc
Encl.

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COHEN, DIPPELL AND EVERIST, P. C.

DEC 20 1991

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

Federal Communications Commission
Office of the Secretary

In the Matter of

Review of the Radio Broadcast)
Services; Advanced Television) *MM Docket No. 87-268*
Systems) *FCC 91-337*

COHEN, DIPPELL AND EVERIST, P.C.
COMMENTS ON NOTICE OF PROPOSED RULE MAKING
CONCERNING ADVANCED TELEVISION SYSTEMS

Introduction

These comments are submitted by Cohen, Dippell and Everist, P.C. Consulting Engineers ("CDE"), in response to the *Notice of Proposed Rule Making* ("Notice") adopted October 24, 1991, in MM Docket No. 87-268, FCC 91-337. CDE and its predecessors have practiced before the Federal Communications Commission ("FCC") for more than 50 years, representing the broadcast industry in professional engineering matters. This Notice is the beginning of a series of rule making items issued by the FCC to amend its Rules to implement the Advance Television Systems ("ATV") service. We believe that the FCC decisions with the stated goal to institute an ATV service for terrestrial broadcasting are vitally important, if over-the-air television service is to continue into the future on a competitive basis.

The Commission has embarked upon a very important rule making proceeding regarding ATV. It will set the principles for formulating the ATV allocation and assignment channels. ATV holds the promise of bringing to the public high resolution pictures and extended sound fidelity television via terrestrial transmission. CDE offers the following comments in support

of the Commission's goals to select and implement an ATV system in a timely and logical manner. The Commission has requested comments on very fundamental issues governing the appropriate course for ATV eligibility, assignment and allotment, non-commercial and low power and translator status and the transition of existing TV facilities to ATV operation. While the Commission has formulated these questions which have overriding legal overtones, they also pose several fundamental technical issues. CDE wishes to applaud the Commission's effort in addressing these issues in a forthright and timely manner. CDE comments are directed to some of the possible technical aspects of bringing over-the-air ATV into the home of the viewers.

Briefly, CDE believes at this juncture that technical issues must naturally focus on allocation, transition and propagation issues.

CDE believes it is essential that for ATV to succeed, it will require provision of an equivalent service area to that now provided by existing stations. Equivalent service area includes an acceptable signal for a distance from the transmitter site including the City Grade contour out to the Grade B contour and beyond. Further, it is mandatory that the ATV signal be easily received in the viewer's home without special and extraordinary measures.

Allocation

CDE respectfully urges the Commission when it begins its work on the allocation plan for ATV service that it take into consideration that it achieve or exceed existing NTSC service. While we recognize no comparable endeavor to upgrade a terrestrial system serving a large public audience has ever been attempted, introduction of an improved quality picture at the expense of abbreviated service area would be counter-productive. A further requirement that

the current system be retained while the new system is inaugurated within the same spectrum is a monumental and formidable task. While it is not known which system will be selected; nevertheless, certain technical allocation threshold issues CDE believes must be addressed if a universal ATV system is to be implemented that achieves these meritorious goals.

The sites for new ATV systems must, we believe, be common in large measure to existing tower sites. We believe the prospect of erecting new towers which are expensive undertakings are for most communities not an available option due to zoning, FAA and land availability restrictions. Existing sites such as antenna farms which are generally consolidated in terms of area will be least disruptive to the viewing audience for ATV use since it will be compatible to current viewing habits. Compatible receive antenna orientations will be crucial.^{1/} A common signal direction^{2/} will increase the acceptance by the public when it places the ATV set in the home. There are several reasons for this concern. First, while the ATV transmission system has not been selected and is without benefit of appropriate field tests, it is quite possible that the ATV system will potentially in the early stages of implementation not be as easily received as the current NTSC system. This suggests a transition of the ATV system above and beyond that contemplated by the Notice.

^{1/}Receiver antenna orientation has always been an important factor and with any ATV system will be equally, if not more important.

^{2/}CDE believes the reception path and the receiver antenna characteristics are equally important considerations and are critical factors that must be considered, if widespread public acceptance is to be achieved.

Further, we believe that many of the receivers today do not have the benefit of outdoor antennas or cable connections.^{3/} This issue is important since second or third receivers in the home may be placed at "critical" family living locations such as the kitchen, living room or bedroom where television viewing while selective is important to the viewer. The question of graceful degradation has been the subject of much discussion and study by appropriate working groups of the various ATV committees and CDE does not wish to recite those concerns, except to emphasize an overall concept. If the system selected is not as compatible with the current viewing public habits as the present NTSC service, it will serve to hinder the rapid implementation that the Commission seeks. For example, many radiofrequency issues have yet to be examined and it is not yet known whether the system to be selected will require special consideration such as transmission "return loss"^{4/} criteria at both the transmission facility as well as at the receiver. While the return loss threshold limits may be suitably engineered at the transmission facility it is an uncertain or unknown factor in the average viewing environment with its multitude of reflecting objects. These reflections^{5/} can have frequency sensitive elements that could be critical as to the ATV picture acceptability by the general public. Therefore, developing an allocation plan having as its basis its transmission locations similar if not identical to current transmitter sites is a critical factor, since it will be the least disruptive

^{3/}Many homes do not have all receivers connected to cable.

^{4/}Return Loss = $-20 \log_{10} (VSWR-1/VSWR+1)$

^{5/}For example, in areas with mountainous terrain, subject to multiple reception paths, black and white sets are used since color set pictures are less viewable. Since no ATV track record is yet developed, any ATV system must achieve comparable graceful degradation to NTSC.

and will present to the public signal directions that are already familiar. The separate issues of ATV acceptability and viability and graceful degradation of the ATV signal will require scrutiny in a later proceeding once the important laboratory and field tests have been completed.

We urge the Commission when it embarks on its allocation studies looking forward to developing an overall allocation plan to poll^{6/} each current television operation as to where it expects to operate an ATV facility, if it elects to do so. This, we believe, is a very important aspect as it will bring into the equation critical experience and judgment factors of the current licensees. We believe for example in those areas where current television facilities are not totally located in a central area or where some but not all of the television stations are operating from a common site^{7/} could be a problem for the ATV viewer. We believe that to preordain ATV facilities to each existing site will mandate and continue to promote the allocation imperfections of the current allocation plan. In order not to imbue the new allocation plan with these current allocation artifacts, the Commission should to the degree possible take these special allocation situations into consideration.

Transition

There are many aspects to the transition issues which will have great bearing on whether public acceptance of terrestrial ATV will be the overwhelming choice. However, due to a number of important technical elements we foresee, the transition to an all ATV system could

^{6/}This could be an FCC instituted proceeding with appropriate legal notice.

^{7/}WTSP, St. Petersburg, Florida is an example where current site criteria dictates that it be located northwest of the city versus the Riverview antenna farm.

take considerably longer than that envisioned by the Commission. We encourage the Commission to develop and bring to the public advanced terrestrial television systems only as soon as technically feasible.^{8/} To introduce ATV prematurely could introduce an uncertain climate in the terrestrial system. However, some markets in adopting ATV will be in the forefront of adoption while others for economic or other reasons, will be unable to implement ATV systems in a rapid fashion. During the course of this transition some international restrictions also could apply with neighboring countries where mutually satisfactory allotment plans need to be fully developed. This leads to an inescapable fact that the transition period will be crucial in the current economic life of the very stations that the Commission is encouraging to implement the ATV system. It is therefore imperative that the opportunity to implement ATV be preserved for a sufficient time.

The ATV proceeding can have a direct economic impact on the existing television system. For example, if the station is in the process of being transferred,^{9/} it is essential that the Commission adopt an allocation plan which will permit each allotment to be implemented with ease and be predictable. We believe one of the aspects that will require investigation is ease or constraints placed on each existing station in order that it may implement ATV. An adverse allotment site including incompatible service allotment or other restriction or other reception uncertainties or loss of its NTSC TV translators to ATV allotments will have a direct

^{8/}This decade has seen the impact by the flaw experienced by the Hubble telescope.

^{9/}CDE has performed a number of station inspections at the time of their impending sale.

consequence on the economic future viability of that station. Therefore, we urge the Commission to adopt a transition period of sufficient length so as not to impair the economic value of the station's current facility at a time that the station will be faced with a considerable capital outlay to implement an ATV system.

CDE believes that the provision of sufficient transition time may be important so as not to make obsolete television receivers currently used by the viewing public. Many of the newer television sets using electronic tuning and other modern circuitry will have greater longevity than similar models in 1950 and 1960's. Further, this will allow an orderly transition for video source material to be developed without requiring valuable resources being totally directed in developing appropriate program material. Simply stated CDE believes an evolutionary approach to ATV will be more fruitful than a revolutionary transition. This brings us to our next point.

We believe that existing stations, many of which were implemented over thirty years ago,^{10/} are reaching important decisions with regard to updating existing transmission RF systems. If an abbreviated transition schedule is adopted by the Commission, it will only serve to extend the "life" of the existing equipment. This could affect the quality of service provided by older installations. If the Commission adopts a longer transition period the station faced with a replacement equipment cycle could replace that equipment without the fear of facing a rapid write-off schedule. While the ATV process is being completed over this decade, the FCC should not discourage investment in the current terrestrial facilities which must serve as the bridge to the ATV system.

^{10/}See Table 1 which provides by decade the number of stations inaugurating service. For example, over 50% of the VHF stations began operation in the 1950's.

Propagation

CDE believes that the Commission should undertake review of its propagation model. We believe that while the spectrum for NTSC was sufficient to provide universal television service to the United States, the assigning of a vast number of new channels assigned to ATV within the existing spectrum without curtailing existing off-the-air service will be a task of great magnitude. Estimation of the impact on current service while implementing a new service can only be achieved by taking into account all the variables to the reception path. We recognize this is a daunting prospect; however, we believe further refinements in the current Commission propagation model would serve as a valuable tool. We urge the Commission to address this matter in an appropriate proceeding.

Summary

In order to adopt an efficient and orderly introduction of over-the-air reception of ATV to the general public, several important technical factors must be considered in the allocation planning.

- ° For public acceptance of the new ATV system, allocation of new ATV channels to common antenna farm areas is essential to enable the use of compatible receive antenna orientations to gain faster public acceptance.
- ° It is mandatory that ATV service areas be equal to or exceed existing NTSC service areas so as to promote rapid public acceptance.
- ° Interference to existing NTSC service areas by ATV operations would be counter-productive to the Commission's goals.

Similarly, important technical factors must be considered when planning the NTSC to ATV transition and its acceptance by the public. The transition timetable is of crucial importance to the current television industry. A fast-track transition timetable will introduce uncertainties caused by required television studio and transmission system purchases and installation of ATV equipment.

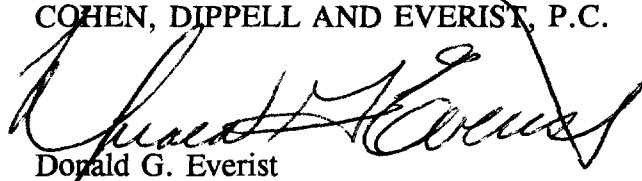
- ° Some markets will be able to afford and rapidly implement ATV systems while poorer markets will be unable to effect the required changes in a timely manner.
- ° Markets near international border areas may be subject to delays, pending bilateral TV agreements.
- ° Rapid obsolescence of 100's of millions of NTSC receivers is not in the public interest, particularly if ATV receivers and receive antenna systems are substantially more expensive. This would be to the detriment of the economically disadvantaged who are heavily dependent on current terrestrial TV transmissions.
- ° If ATV coverage is not equal to or is not better than existing coverage areas, net loss of service to the American public will result when the NTSC system is superseded.
- ° The continued reservation of all existing VHF-TV and UHF-TV spectrum for primary broadcast use^{11/} is recommended. This will enable ATV stations to augment any lost NTSC service areas with TV translators.
- ° An evolutionary rather than a revolutionary transition from NTSC to ATV is vital to the continued viability of the terrestrial television industry.

^{11/}Further land-mobile spectrum sharing will frustrate and preclude efficient replacement coverage of ATV service to the American public.

In view of the increased demand on the existing spectrum to support new ATV and existing NTSC operations, CDE recommends that the Commission fully review the realities of VHF and UHF propagation into a new transmitter to receiver propagation model so that more accurate predictions can be performed.

Respectfully Submitted,

COHEN, DIPPELL AND EVERIST, P.C.

A handwritten signature in black ink, appearing to read "Donald G. Everist", is written over the printed name and title.

Donald G. Everist
Professional Engineer
District of Columbia
Registration No. 5714

Date: *December 20, 1991*

TABLE I
NUMBER OF VHF-TV AND UHF-TV STATIONS
INAUGURATING SERVICE
LISTED ACCORDING TO DECADE
DECEMBER 1991

<u>DATE</u>	<u>VHF</u>	<u>UHF</u>
1930's	1	---
1940's	95	---
1950's	359	79
1960's	109	163
1970's	52	140
1980's	45	370
1990's	2	24

NOTE: Approximately 20 VHF and 50 UHF stations implementation dates were not available

SOURCE: 1991 *Broadcasting Yearbook*